30 min or 120 min reperfusion.Control hearts were mounted on a Langendorff apparatus and subjected to 30 min of myocardial ischaemia followed by either: (a) 10 min of reperfusion, at the end of which the myocardium at risk was analyzed for Akt phosphorylation or (b) 120 min of reperfusion at the end of which myocardial infarct size was determined using tetrazolium staining. Hearts treated by IPost were subjected to 10 s episodes of alternate myocardial ischaemia/reperfusion applied at the end of the 30 min period.

Results: Treatment with IPost did not reduce myocardial infarct size in diabetic hearts; (45.65±4.8% in control versus 50.12±3.7%; N = 10/group; P = NS). There was no difference in Akt phosphorylation between the two groups (51.5±4.6arbitrary units in control versus 54.1±4.2 arbitrary units in IPost diabetic hearts; N = 10/group; P = NS). And no difference in GSK-3β phosphorylation between the two groups (47.2±4.1arbitrary units in control versus 51.4±3.7arbitrary units in IPost diabetic hearts; N = 10/group; P = NS). And, no improvement in hemodynamic parameters, include the HR, LVSP and +dp/dtmax. Exogenous zinc gived intraperitoneal injection in diabetic rats ($ZnSO_4$ solution, 50mg/Kg), and the action of IPO can be wake-up and recovery.show that improvement in hemodynamic parameters, and infart size reduced compared with the IPost heart of diabetic rats (31.10±3.4% VS 50.12±3.7%, P<0.01, n=10), There was Significant difference in Akt and GSK-3β phosphorylation between the two groups (67.6±3.4arbitrary units in Zinc+DM versus 54.1±4.2 arbitrary units in IPost diabetic hearts; N = 10/group; P<0.01 in Akt and 83.8±3.7arbitrary units in Zinc+DM versus 51.4±3.2 arbitrary units in IPost diabetic hearts; N = 10/group; P<0.01 in GSK-3β).

Conclusions: In conclusion, postconditioning does not protect the diabetic heart which may be due to insufficient Akt and GSK-3β activation. Exogenous zinc gived in diabetic rats the action of IPO can be wake-up and recovery.This finding may have important implications on the utilisation of this cardioprotective intervention in diabetic patients with ischemic heart disease.

GW25-e3395

microRNA-27a represses cholesterol efflux through targeting ABCA1 in oxLDL-stimulated THP-1 Macrophages

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Objectives: ATP binding cassette transporter A1 (ABCA1) is a key mediator of intracellular cholesterol efflux, which plays an important role in cholesterol homeostasis. MicroRNAs (miRNAs) are strong posttranscriptional regulators of numerous physiologic and pathological processes. Studies showed that miRNAs might involved in the regulation of cholesterol metabolism. In this study, we investigated where the miRNAs participated in the regulation of cholesterol efflux and the signal transduction mechanism.

Methods: Real-time PCR was using to detect seven miRNAs (miR-33, miR-758, miR-27a, miR-27b, miR-122, miR-378 and miR-29) and gene expression profiles in THP-1 macrophages, elicited by simvastatin or ox-LDL. The prediction of miR-27a targets was acquired from three publicly available programs (TargetScan6.2, PicTar and miRanda). To validate the hypothesis that ABCA1 might be a target of miR-27a, a dual luciferase reporter system containing wild type 3'-UTR of ABCA1 was used. Cholesterol loading and efflux assays were used to analyze biological function after transfection with miR-27a mimics or decoy oligodeoxynucleotides (ODN). The protein expressions of ABCA1, ABCG1, PPARγ and LXRα were detected by Western blotting.

Results: We identified a subset of seven miRNAs that showed varying abundance (P< 0.01) by cholesterol depletion or cholesterol enrichment. Bioinformatics analysis suggested that miR-27a was related to ABCA1 and this was confirmed by a luciferase reporter assays. miR-27a significantly decreased ABCA1 expression and impaired cellular cholesterol efflux to apoA1 in oxLDL-stimulated THP-1 Macrophages (P< 0.05), whereas decoy ODN increased the ABCA1 expression and cholesterol efflux (P< 0.05). The ABCA1 expression has not changed after inhibition of PPARγ by using siRNA or GW9662, which means that miR-27a inhibited the ABCA1 expression in a PPARγ independent manner (P< 0.05).

Conclusions: These results demonstrate that miR-27a affects the progress of cholesterol content and efflux in PPARγ/LXRα signaling pathways independently by targeting ABCA1 in oxLDL-stimulated THP-1 Macrophages, provided a novel therapeutic target for cholesterol metabolic disorders.

GW25-e3545

The Effects of moderate-intensity exercise on Cardiopulmonary Function on Undergraduate Students

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Objectives: The function of cardiopulmonary system is to take in and transport oxygen into the body and remove waste from the body in the form of carbon dioxide. It interacts closely with every other system in the body. Cardiopulmonary exercise can fully work the heart and lungs while people can mean cardiopulmonary exercise testing when using this term, which is a way to measure heart and lung fitness. The goal of any aerobic exercise is to elevate the heart rate to a certain target rate, and keep it there for a set period of time. Many different types of exercise are cardiopulmonary exercise, jog, row, and swim. In recent years, the Ministry of Education data show that the undergraduate students' cardiopulmonary function decline year by year, this situation needs to be addressed as soon as possible. This experiment aims to find a suitable load for undergraduate student to exercise.

Methods: 30 ordinary college students were selected, on the basis of the measured testers VO2max, by controlling the running speed, the tester continue exercise for 30 min under 55% VO2max strength, test the related parameters of cardiopulmonary function, in order to observe the influence of moderate-intensity exercise on college students cardiopulmonary function, which provides the theoretical basis to guide college students scientific and rational sports.

Results: Results showed that under the intensity of 55%VO2max, male' s RQ is 1.09±0.07, VO2 (l/min) is 1.76±0.14, HR (1/min) is 137.22±7.06, VE (l/min) is 52.99±8.49, RO2 (ml/min/kg) is 25.40±2.41, O2P (ml) is 12.81±1.25, METS is 7.26±0.69, CO (l/min) is 11.62±1.12, SV (ml) is 84.73±10.41, HR/ HRmax (%) is 71.20±3.76;and the Female' s RQ is 1.06±0.06, VO2 (l/min) is 1.07±0.05, HR (1/min) is 137.44±7.45, VE (l/min) is 34.54±3.51, RO2 (ml/min/kg) is 21.33±1.22, O2P (ml) is 7.79±0.60, METS is 6.08±0.38, CO (l/min) is 7.42±0.80, SV (ml) is 54.13±6.28, HR/ HRmax (%) is 71.00±4.04.

Conclusions: VO2max measurement is ultimately a measure of the cardio respiratory fitness level. During aerobic/endurance exercise, as the exercise intensity increases, the VO2 increased so it can be the item for measurement of exercise load. 55% VO2max intensity is regular moderate exercise intensity, moderate stimulus to the body for undergraduate student. Low intensity exercise, that is under the 55% VO2max cannot give sufficient stimulation to the body so it not suitable for undergraduate students for aerobic exercise. We suggested that moderate intensity exercise is effect load for fitness.

GW25-e3561

Different style of sports has different influence on the recovery of heart rate

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Objectives: As one of the indicators that reflect the physiology of angiocarpy, to some degree, heart rate can reflect one's natural fitness and operational ability. In recent years, the recovery of heart rate has become one of the hot topics in exercise fitness function. This experiment aims to test the different style of sports has different influence on the recovery of heart rat.

Methods: The object of this study is high level athletes, totally 43 from different sports. Resting heart rate was measured first and then impose moderate intervened exercise for 3min, after that, immediate, 2min, 4min and 6min HR was used to value their recovery function. Understanding their recovery of heart rate can provide the basis for the discuss of mental function capacity and can also provide the reference for exercise training. And also can compare the influence of difference style exercise.

Results: For the resting HR, the average HR of track and field (male), balls (male), track and field (female), balls (female) are 58b/min, 61b/min, 71b/min, and 69b/min respectively. Examine the heart rate after sports instantly, 2min, 4min, 6min, compare with the original T, and we find that female athletes of track and field and balls bear significant difference in the recovery of heart rate (P<0.05), which shows the recovery of heart rate of female athletes of balls is obviously lower than the others. The rate of female and male athletes of track and field is also different (P<0.05), and it shows recovery of heart rate of male athletes is obviously lower than the female; there is no difference between male athletes of track and field and balls (P>0.05); there is no difference between female and male athletes of balls as well (P>0.05).

Conclusions: Generally speaking, the male's cardio-pulmonary function is better than the female. And the athletes of ball are better than the track athletes.

GW25-e4262

Effects of anti-myocardial ischemia on Wenxin granule by enhancing the expression of Connexin 43

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Objectives: The aim of the study was to investigate the effects of Wenxin granule on Connexion 43 (Cx43) in the myocardial cells with ischemia-reperfusion injury (IRI), and the potential mechanisms in rats.

Methods: 75 male Wistar rats (220-250g), were randomly divided into five groups: sham group (n=15), control group (n=15), WXG low dose group (WXGL group, n=15, 2.43g/kg/d), WXG high dose group (WXGH group, n=15, 9.72g/kg/d) and Nifedipine group (N group, n=15, 20mg/kg/d), all groups were administrated intragastrically for seven days, and equal normal saline was given in sham and control group. The models of ischemia-reperfusion injury were established by ligating the left anterior descending (LAD) branch of coronary artery in rats. And ligated the LAD for 30minutes in control group, WXGL group, WXGH group and Nifedipine group, then reperfused for 120 minutes. The sham group were only threaded without ligation. Then record the electrocardiograph (ECG) of each groups at the point of 30mins of ischemia and 120 mins of reperfusion in ST segment respectively. The plasma creatine kinase (CK), and lactate dehydrogenase (LDH) were measured after IRI. The morphological changes of myocardial cell was detected by HE staining method. And measured the Ca^{2+}～ATPase, superoxide dismutase (SOD) and malondialdehyde